

## THE SESSILE STAGES OF A SCYPHOZOAN IDENTIFIED AS *RHOPILEMA VERRILLI*

DAVID G. CARGO

Natural Resources Institute, Chesapeake Biological Laboratory  
Solomons, Maryland 20688

### ABSTRACT

Medusae of a rhizostome, *Rhopilema verrilli*, have been observed at Solomons, Maryland, in 1965 and 1967. No previous record from Maryland waters was found. The sessile polyp, strobila and cyst stages of this species are described for the first time.

Several scyphozoan coelenterates occur in the Chesapeake Bay. The troublesome summer sea nettle, *Chrysaora quinquecirrha* DeSor, is abundant in the warmer months and is joined by the moon jelly, *Aurelia aurita* L., in late summer and fall. During the colder months, these medusae are absent and the winter jellyfish, *Cyanea capillata* L. appears. The only other species of scyphozoan recorded from the Bay is the rhizostome *Rhopilema verrilli* Fewkes, which was seen on two occasions near the mouth of the Bay in early winter (Wass 1965). There is no record of this species from Maryland waters (Kramp 1961) and the absence of information on its sessile stages has prompted this account.

A large gravid female medusa of 25–30 cm bell diameter was taken from the Patuxent River at Solomons, Maryland on 12 October 1965. It was accompanied by four crabs, two *Libinia dubia* H. Milne Edwards and two *Callinectes sapidus* Rathbun clinging to the sub-umbrella space between the oral arms and the marginal lappets, an association reported previously (Jachowski 1963) for *Aurelia aurita*. It was not identified in the field but was kept in a tank of running river water for several weeks. It then died and was discarded. The short, large, terminal appendages and the brownish color of the

mouth arms led me to identify it as *Rhopilema verrilli*.

This species was not seen in 1966, but in 1967 several were taken (up to 15 cm diameter) at Solomons and in nearby waters. Its recent presence in this area has urged me to make this information available despite the loss of the specimen upon which these observations were made.

Pieces of gonad material from the 1965 specimen were placed in aerated bowls and within a few days large numbers of polyps were found on the bottom of the bowls. Other sets of polyps were secured by shaking the medusa in a bowl of water and aerating for 24 hours. Clean bowls were also placed in the aquarium where the medusa was kept and subsequently polyps were found in them, too.

The gonad material developed without any motile planular stage into masses of scyphistomae, grossly enlarged, misshapen and monstrous when compared with scyphistoma of other species. These fed and behaved in a normal fashion (see below), but were not closely observed because of their obvious aberrant development. Glass bowls exposed in the tank where the medusa was kept also accumulated a set of polyps. These polyps were radially symmetrical and had a more characteristic morphological appearance. I could not determine whether the "normal" appearing scyphistome had developed from unnoticed planulae or from small pieces of gonadal material. "Normal" appearing polyps are discussed and described below.

Polyps became identifiable in three to five days after the bowls containing the gonadal material from the adult medusae had been placed in the running water. The tempera-

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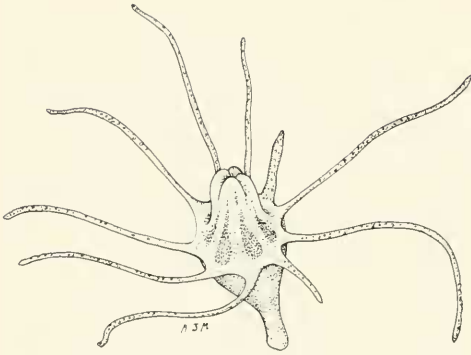


Figure 1. Newly set scyphistoma of *Rhopilema verrilli*.

ture was 18 C. Figure 1 shows the general morphological features. The diameter of the tentacular disc was .35 mm, length of mouth .25 mm, and the polyp height was .75 to 1.0 mm. No peristomial pits were present and the usual number of tentacles was eight or ten.

The polyps reacted negatively to strong light and seemed to sense vibrations in the water, particularly those caused by small zooplankters. Larval barnacles, brine shrimp

and a lavender-colored turbellarian were stung and taken by the tentacles of the polyp. The tentacles then quickly thrust the food organism into the open, protruding and flexible mouth. A small white nudibranch, *Tenellia pallida* Alder and Hancock was seen to ingest some of these polyps. It probably ate others as the nudibranch deposited eggs within the bowl and eventually all polyps disappeared from that bowl.

Six months after these polyps had set in the bowls, we attempted to induce strobilation, assuming that they were seasonally similar to *Chrysaora*. The bowls, which had been kept in our running water tanks, were then at 13.5‰ salinity and a temperature of 9 C. They were removed and raised to room temperature of 20 C, aerated, and 1 gm of "Rila Marine Mix" (Rila Products, Teaneck, N.J.) was added each day for six days, to 500 cc of river water, raising the salinity to 19.6‰. Seven days later, two polyps had begun strobilation. One appeared more fully developed than the other (Figure 2). They are characteristic monodisc strobilae and very much like that of *Cassiopea xamachana* Bigelow, as pictured in Mayer (1910), page 642. The ephyrae pulsed strongly; the retractile

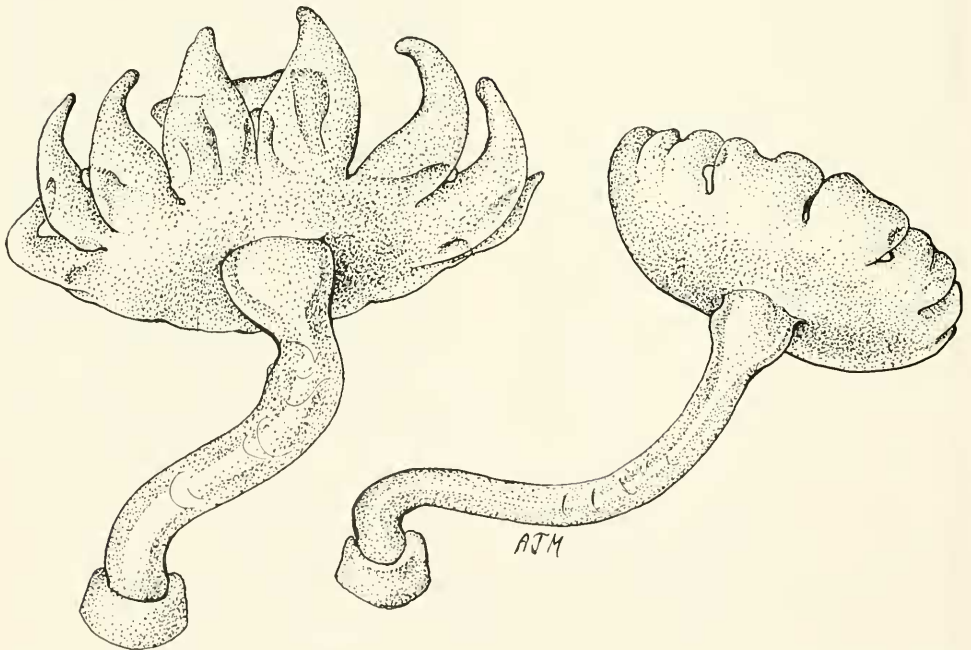


Figure 2. Strobilae of *Rhopilema verrilli* showing pedal cyst. The strobila on the right is the more advanced.

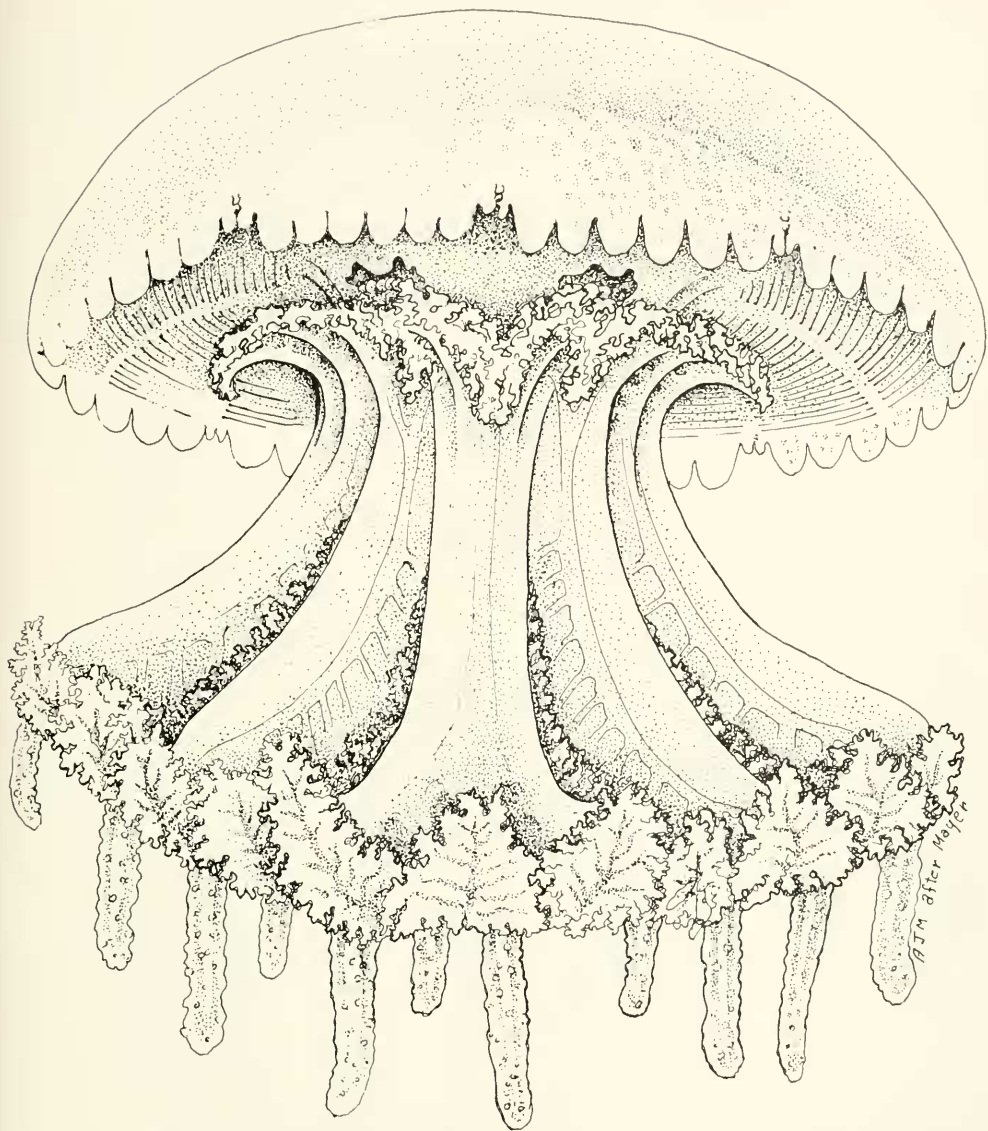


Figure 3. Medusa of *Rhopilema verrilli*. Drawn by A. J. Mansueti after Mayer 1910.

mouth was well developed and flexible. The mouth of *Rhopilema* is not as long in relation to the width of the ephyral disc as is that of *Cassiopea*, nor is the swelling of the stalk as large or as deeply indented where the ephyral disc is attached.

The cell layers of the ephyrae are peach or orange-red in color and the statocysts in the rhopalia (sense organs) are a bright yellow gold and appear birefringent. The lappets, at first somewhat elongate, gradually

became shortened and rounded as the separation of the ephyra became imminent.

This species possesses a cyst stage. The cysts, first seen beneath the strobilae and later in bowls not bearing strobilae, are small (.4 mm in diameter) and a golden, pearly white color. The side walls are almost vertical and the tops are nearly flat (Figure 2). The concentric rings typical of scyphozoan cysts are depressed only slightly. The deposition, or manufacture, of these cysts was not

observed, nor were we able to keep them long enough to determine their viability or mode of budding.

I would like to thank Miss Joann Allwein for her assistance with many phases of the laboratory experiments and observations, and Mrs. Alice J. Mansueti for her excellent drawings. This study was partially supported by the State of Maryland Department of Game and Inland Fish and the United States Department of the Interior under Contract No. 14-17-0007-959; this paper is Contribution No. 462, Natural Resources Institute, University of Maryland.

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September 30, 1971